UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/400,346	09/20/1999	KENTARO TOYAMA	MCS-058-99	3337

27662   7590   06/18/2003

LYON & HARR, LLP
300 ESPLANADE DRIVE, SUITE 800
OXNARD, CA 93036

EXAMINER
LE, BRIAN Q

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

		Application No.	Applicant(s)
Office Action Summary		09/400,346	TOYAMA ET AL.
		Examiner	**Art Unit**
		Brian Q Le	2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 May 2003* .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20,93 and 94* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20,93 and 94* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 September 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

CONTINUED EXAMINATION

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 05/16/2003 has been entered.

RESPONSE THE AMENDMENT AND ARGUMENTS

2.   Applicant's arguments are directed toward various portions of Sambonsugi cited by the

Examiner. The Examiner points out that the rejections were based upon the entire reference.

Therefore, Applicant is urged to consider the reference as a whole. When considering the cited

portions within context the whole patent, it is seen that the claimed invention is rendered

obvious.

3.   '   Applicant's arguments with regard to claims 1-20 and 93-94 have been fully considered,

but are not considered persuasive because of the following reasons:

The Applicant argues that Sambonsugi does not teach the predictions for a value of each

of the plurality of pixels but rather teaches the shape prediction base on the known pixel value.

The Examiner agrees that Sambonsugi teaches the shape prediction. However, Sambonsugi also

teaches the detections (predictions) base in the pixel value of the plurality of pixels (respective

pixels) (column 4, lines 20-36 and 48-55) in order to predict the shape or position of object

within images. Thus it is clear that Sambonsugi teaches the predictions for a value of each of the

plurality of pixels.

In addition, the Applicant argues that Jain et al. cannot combine with Sambonsugi

because Jain does not teach the concept of providing predictions for a value of each pixel.

However, the Examiner uses Sambonsugi to teach this concept.

Thus, the rejections of all of the claims are maintained.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the
> United States before the invention thereof by the applicant for patent, or on an international application
> by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
> title before the invention thereof by the applicant for patent.

5.   The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) do not apply to the examination of this application as the application being examined

was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C.

122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment

by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6.   Claims 1-7, 11-19, and 93-94 are rejected under 35 U.S.C. 102(e) as being anticipated by

Sambonsugi et al. U.S. Patent No. 6,335,985.

For claim 1, Sambonsugi teaches a system for maintaining a background model (Fig 2,

12) for an image sequence (Fig 20, 141) having a plurality of pixels (Fig 7 and column 19, 18-

21), comprising:

A pixel processing module that processes the image sequence on a pixel scale (column 4,

line 20-35);

A prediction module that provides predictions (detections) for a value of each of the plurality of pixels (respective pixels) (column 4, lines 20-36 and 48-55) (column 20, lines 52-67); and

At least one refinement module that processes the image sequence on a spatial scale other than the pixel scale (column 4, line 37-47).

As disclosed by the applicant, spatial scale includes pixel scale, regional scale or frame scale. Sambonsugi clearly teaches pixel scale, regional scale and frame scale through out the reference (column 4, line 37-47 and column 7, line 5-23). Also, it is inherent that a refinement module can be an error minimization technique or enhancement to optimize a new sequence image.

For claim 2, Sambonsugi also teaches the system wherein the pixel processing module further comprises determining an initial background model and providing an initial pixel assignment of each of the plurality of pixels (column 4, line 19-23).

For claim 3, Sambonsugi teaches the system wherein a first refinement module is a region processing module that processes the image sequence on a regional scale (column 4, line 37-47).

Referring to claim 4, Sambonsugi discloses the system wherein the region processing module further comprises considering a relationship between at least some of the plurality of pixels to provide pixel assignment (column 13, line 60-67 and column 14, line 10-15).

For claim 5, Sambonsugi also discloses the system wherein a second refinement module is a frame processing module that processes the image sequence on a frame scale (column 12, 25-50 and 62-67).

Referring to claim 6, Sambonsugi teaches the system wherein the frame processing module further determines a background model that most accurately represents an actual background of the image sequence and performs: (b) substituting a more accurate background model in place of the current background model (column 12, line 0-17).

And for claim 7, Sambonsugi also teaches the system further comprising a postprocessing module that provides enhancement of the image sequence (column 18, line 52-60 and column 31, line 54-67).

For claims 11, Please refer back to claim 1 for further discussion. Also, Sambonsugi teaches a computer-readable medium (column 35, line 0-3) having computer-executable modules (column 48, line 31-38).

For claims 12-13, please refer back to the discussion of claim 3.

For claims 14-15, please refer back to the discussion of claims 5 and 7.

Referring to claim 16, Sambonsugi teaches a method for maintaining a background model (Fig 2, 12) of an image sequence (Fig 20, 141) having a plurality of pixels (Fig 7 and column 19, line 18-21), comprising:

Processing the image sequence on a pixel scale so as to determine a current background model and provide an initial assignment for each of the plurality of pixels (column 6, line 35-48 and column 4, line 19-23);

Calculating predictors for a value of each of the plurality of pixels (column 20, lines 52-67); and

Refining the pixel processing by processing on a spatial scale other that the pixel scale (column 7, line 53-64) to further refine at least one of: (b) the initial pixel assignment (column 13, line 60-65 and column 14, line 0-15).

For claims 17-19, please refer back to the discussion of claims 3, 5 and 7.

For claim 93, please refer back to claim 1 for the explanation.

For claim 94, please refer back to claims 1 and 2 respectively for the explanation.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sambonsugi et al. U.S. Patent No. 6,335,985 and Jain et al. U.S. Patent No. 6,263,091 as applied to claim 7 above.

Referring to claim 8, as disclosed in claim 7, Sambonsugi teaches the enhancement concept of the image sequence. However, Sambonsugi failed to introduce that the enhancement technique can be speckle removal. Nevertheless, Jain teaches the technique to isolate foreground and background using speckle removal (column 17, line 42-52). Therefore, it would have been obvious to use speckle removal as an enhancement technique because speckle removal is well known in the art to use to remove the presence of noise, dirt, breaks, and smudges in input images.

For claim 20, please refer back to the discussion above.

9.   Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sambonsugi et al. U.S. Patent No. 6,335,985.

Referring to claim 9, Sambonsugi teaches a concept of the system wherein the

postprocessing module provides enhancement after the pixel processing module and before the

frame processing module (column 32, line 23-35). Furthermore, it also is a designer to have a

specific sequence of postprocessing to achieve the desired goal. Therefore, it would have been

obvious for one in the ordinary skill of the art to come up with a method wherein the

postprocessing module provides enhancement after the pixel processing module and before the

frame processing module to output a better quality sequence of images.

For claim 10, as disclosed above, Sambonsugi also teaches the system wherein the

postprocessing module provides enhancement after the frame processing module and before the

region processing module (column 33, line 0-9 and column 34, line 9-27).

Reference Cited

10.   The following patens are cited to further show the state of the with respect to image

segmentation, foreground, background, and prediction base on pixel value:

U.S. Patent No. 5,995,668 to Corset et al., teaches the segmentation of picture, foreground,

background and the predictions of pixel base on pixel values.

U.S. Patent No. 5,875,040 to Matraszek et al., teaches the method for providing values for

unknown pixels in digital image.

U.S. Patent No. 6,553,139 to Kaup et al., teaches the computer process for processing the image

points of an image segment.

Pardas, M.; Motion and region overlapping estimation for segmentation-based video coding; Image Processing; pages 428-432 vol. 2; November, 1994.
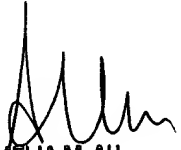
Contact Information

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q Le whose telephone number is 703-305-5083. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5397 for regular communications and 703-308-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

BL
June 5, 2003

AMELIA M. AU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600